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JAPANESE PATENT OFFICE

PATENT ABSTRACTS OF JAPAN

(11) Publication number: 06041183 A

(43) Date of publication of application: 15.02.1994

(51) Int. Cl. C07H 21/04
C07H 21/02, C12Q 1/68

(21) Application number: 04196819
(22) Date of filing: 23.07.1992

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(54) MONOMOLECULAR FILM OF
OLIGONUCLEOTIDE

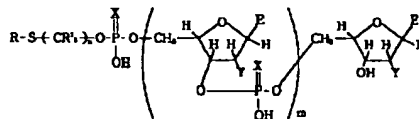
(57) Abstract:

PURPOSE: To provide the monomolecular film useful as functional materials such as DNA sensor, a material for molecular element, etc., by bonding a compound having an oligonucleotide structure through sulfur atom to the surface of a metal substrate.

CONSTITUTION: A compound having an oligonucleotide structure is bonded through sulfur atom to the surface of a metal substrate to give the monomolecular film formed on the surface of the metal substrate. The monomolecular film is preferably obtained by dis-

solving an oligonucleotide of the formula (R is H or a thiol-protecting group; R¹ is H or a 1-3C alkyl; E is a nucleic acid salt base; X is S or O; Y is H or OH; (m) is 1-20; (n) is 8 or more) in a solvent such as ethanol, adding an acid such as dichloroacetic acid to the solution, eliminating the protecting group of thiol, then taking out thiol and immersing a substrate having a heavy metal surface such as Au at 10-50°C for one hour to 3 days.

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Derwent Title: **Oligo-nucleotide monolayer attached to metal surface through sulphur bonds - used for DNA sensor and molecular elements**

Original Title: ☒ [JP06041183A2](#): MONOMOLECULAR FILM OF OLIGONUCLEOTIDE

Assignee: **MITSUBISHI KASEI CORP** Standard company
Other publications from [MITSUBISHI KASEI CORP](#) (MITU)...

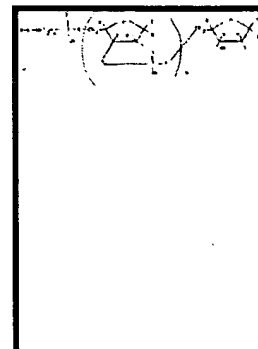
Inventor: **None**

Accession/Update: **1994-089329 / 199411**

IPC Code: **C07H 21/04 ; C07H 21/02 ; C12Q 1/68 ;**

Derwent Classes: **B04; D16; E11; J04; B02; B03;**

Manual Codes: **B04-B03B**(Nucleotides) , **B04-B03C**(Oligonucleotides) , **B04-E01**(Nucleic acid general and other) , **B05-A03B**(Other transition metals, lanthanides - metals and compounds) , **B12-K04A**(Diagnosis of diseases or conditions in animals general) , **D05-C05**(Nucleotides by fermentation) , **D05-H09**(Testing and detection [exc. bacteria, fungi, viruses]) , **D05-H10**(Fixing biological substances or cells to a carrier and the carriers themselves) , **E05-G07**(P-O or P-S bond, heterocyclic compound) , **J04-B01**(Analytical methods/equipment [general])



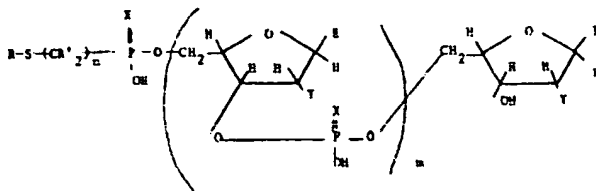
Derwent Abstract: ([JP06041183A](#)) An oligonucleotide monolayer formed on the surface of a metal substrate combined to the surface of the metal substrate through sulphur atom. The oligonucleotide is of formula (I). Where, R = H or protective gp. for thiol; R1 = H or 1-3C alkyl; E = nucleic acid base; X = S or O; Y = H or OH; m = 1 to 20; and n = 8 or more.

USE/Advantage - The monolayer is useful as a material for DNA sensors and molecular elements.

In an example, 246 mg of H-S-(CH₂)₁₁OH (IIIa), 355 g of cpd. CIP(N(C₃H₇(i))₂O(CH₂)₂CN (IV), and 386 mg diisopropylamine were dissolved in 8ml methylene chloride and reacted at 20 to 25 deg.C for 1 hr.. The reaction liquor was extracted with ethyl acetate. The extract was fed to a silica gel column and eluted to give 397 mg of the cpd. H-S-(CH₂)₁₁-O-P(N(C₃H₇(i))₂O(CH₂)₂CN (Va).

The cpd. (Va) was subjected to 3 different steps to give the cpd. (I). A monolayer of 19 A thick was prepd. on an Au-lined Cr-silicon wafer from it.

Images:



Dwg.0/0

Family: PDF Patent Pub. Date Derwent Update Pages Language IPC Code
☒ **JP06041183A** * 1994-02-15 199411 6 English C07H 21/04
 Local appls.: JP1992000196819 Filed:1992-07-23 (92JP-0196819)

Priority Number:

| Application Number | Filed | Original Title |
|------------------------|------------|---------------------------------------|
| <u>JP1992000196819</u> | 1992-07-23 | MONOMOLECULAR FILM OF OLIGONUCLEOTIDE |

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Title Terms:

OLIGO NUCLEOTIDE MONOLAYER ATTACH METAL SURFACE THROUGH SULPHUR BOND DNA SENSE MOLECULAR ELEMENT

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